

REMARKS

Claims 1-3, 6-12, and 15-20 are presented for further examination. Claims 1 and 10 have been amended, and claims 4, 5, 13, and 14 have been canceled.

In the Office Action mailed December 12, 2008, the Examiner rejected claims 1-20 under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6,944,427 (“Haub et al.”) in view of U.S. Patent No. 6,035,213 (“Tokuda”).

Applicant respectfully disagrees with the basis for the rejections and requests reconsideration and further examination of the claims.

Claim Rejections

Claim 1 has been amended, as has claim 10, to include the recitation of dependent claims. More particularly, claim 1 now incorporates the subject matter of dependent claims 4 and 5, and claim 10 now incorporates the subject matter of dependent claims 13 and 14. No new matter has been added. Both of these independent claims now include, in addition to the original material, a recitation that detecting the occurrence of intermodulation distortion includes digital measures of signal strengths, with the measures of signal strengths including an RSSI measure and an Eb/Nt measure, and determining or detection intermodulation distortion when the Eb/Nt measure is below a first threshold value and when the RSSI is above a second threshold value.

The Examiner relies upon the combination of Haub et al. and Tokuda in rejecting these previously unamended claims as obvious. Applicant respectfully submits that these claims are clearly allowable over the combination of these references for the reasons discussed below.

The Tokuda reference pertains to CDMA technology whereas the present application is directed to TDMA and GSM technology for cell phones. Although both references address a similar problem of analog signal interference with a received signal (either TDMA as in the present application or CDMA as in the cited reference) the present claimed system and method differ in a non-obvious and inventive way over that of Tokuda.

In Tokuda, three methods of detecting a “disturbing signal” are described. In the first method, the output of a notch filter is monitored as it is “swept” by a control signal to determine a notch frequency that will generate the lowest output level for the range of control

signals input into the notch filter (see col. 9, lines 5-23, and Figure 8). In a second method, a frequency of the CDMA signal is analyzed in a frequency analyzing circuit 107 (see Figure 12) before input into the notch filter to find the frequency of the highest noise disturbance, and a control signal for the notch filter is developed therefrom (see col. 10, lines 33-53). And in the third “more simplified” method, (shown in Figure 13 and described at col. 11, lines 19-53) the notch filter 108 has fixed notch frequencies that are turned on when a level detecting circuit 109 detects the output of the receiver to exceed a preset reference level. None of these methods utilizes or describes the use of the Received Signal Strength Indication (RSSI) in combination with the ratio of the Energy-per bit (E_b) to the total Noise in the bandwidth (N_t), denoted as E_b/N_t .

More particularly, claim 5 recites using the E_b/N_t ratio as a first measure and the RSSI as a second measure in which the method includes “determining the occurrence of intermodulation distortion if the E_b/N_t ratio is below a first threshold value when the RSSI measure is above a second threshold value.” Claim 7 utilizes a different approach wherein intermodulation distortion is determined to be present if the RSSI is below a first threshold value when the RF energy measure is above the second threshold value.” The specification further notes that the determination of these measures is done at the output of the notch filter.

The Examiner asserts that it would be “obvious to obtain the solutions of claims 5 and 7 by combining the well-known knowledge in the art with Reference 1.” Here, the Examiner is asserting both that it is obvious to combine the claimed RSSI and E_b/N_t measures as applicant has done, and then to also implement this combination in the Tokuda reference.

First, applicant can find no teaching or suggestion in any of the references for using a combination of RSSI and E_b/N_t TDMA/GSM detection criteria as a detection method for the CDMA system. Moreover, there is no recognition in any of the references of a need for using this combination in a CDMA system.

Second, even if one were motivated to combine the claimed detection criteria with Tokuda, there is no suggestion of how the CDMA detection schemes in Tokuda would be modified to implement the claimed TDMA/GSM detection criteria. For example, the claimed TDMA/GSM criteria would not be appropriate for the first detection scheme of Tokuda because

the first detection scheme of Tokuda sweeps the output of the notch detection circuit to determine at what control signal level the output from the filter is at a minimum. This simplified approach does not require the comparison in the claimed circuit that determines if the intermodulation distortion is present by using a double comparison of both the RSSI and the Eb/Nt ratio. The second described approach in Tokuda analyzes a frequency of a CDMA signal outputted from a receiver 102 “by performing a Fourier transformation” (see col. 10, lines 43-44). This is not compatible with the claimed TDMA/GSM criteria and there is no motivation for replacing the Fourier transform method with the double comparison of the claimed method because the claimed method would not work with the output of the receiver. And in the third described approach, Tokuda again uses the output of the receiver and not the notch filter.

Thus, Tokuda teaches that “a sufficient carrier-to-noise ratio of a signal after despreading (which is not done in the claimed TDMA/GSM system) can be attained by giving the variable notch filter 105 the control signal causing the notch filter to have the minimal output level ((b) in Fig. 9).” The claimed method takes the output of the TDMA/GSM notch filter and compares it to both the RSSI and the Eb/Nt measures before turning the filter on.

In view of the foregoing, applicant respectfully submits that independent claims 1 and 10 are clearly not suggested by the combination of Haub et al. and Tokuda. All of the corresponding dependent claims for the features recited therein as well as for the reasons why their corresponding independent claims 1 and 10 are allowable.

Applicants respectfully submit that all of the claims remaining in this application are clearly in condition for allowance. In the event the Examiner disagrees or finds minor informalities that can be resolved by telephone conference, the Examiner is urged to contact the undersigned attorney by telephone at (206) 622-4900 in order to expeditiously resolve prosecution of this application. Consequently, early and favorable action allowing these claims and passing this case to issuance is respectfully solicited.

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Reply to Office Action dated December 12, 2008

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Respectfully submitted,
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